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Product design teaching processes worldwide analysis and comparison for a future on line design studio

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1. Introduction

The author thinks that the education about product design discipline is a fertile field of research and innovation, in particular concerning the debate on the project educational approach that today is openness to new issues.

The chapter purposes to identify the base information to reach an on line design teaching process to adopt within the Design Studios around the world.

The first step done is based primarily on a collection of data to structure an objective view on what is happening and has occurred in a number of countries and higher education institutions concerning product design. The original data will enable the researcher to understand what constitutes a valid sample of countries that have an interest in product design education. In particular this kind of analysis is connected with socio-economic and industrial contexts to understand especially how technology and geographic borders are driving change in the workplace. The data is particularly relevant in order to understand the economic development of a country and its relation to an educational context. The research is also posited on a geographic and cultural/historical analysis .

The following part of the research is the analysis of practice. The majority of work has been completed within design studios and through carefully structured interviews with both lecturers and students. This study will draw comparisons between context and curriculum, and consequently highlight coherences and incongruities.

2. Research field

Prior to analysing both the context and the product design curriculum, the researcher furthermore established a set of clearly defined criteria to determine which continents and subsequently which countries, were appropriate for the study in addition of the previous description. The criteria are two: Economic trends and higher education and product design courses.

These two criteria are closely related to ensure an effective balance between Industrial production to education and the result of their application is illustrated in figure 1 which

represent graphically the interesting Countries for the identification of a number of institutions to use as case studies.

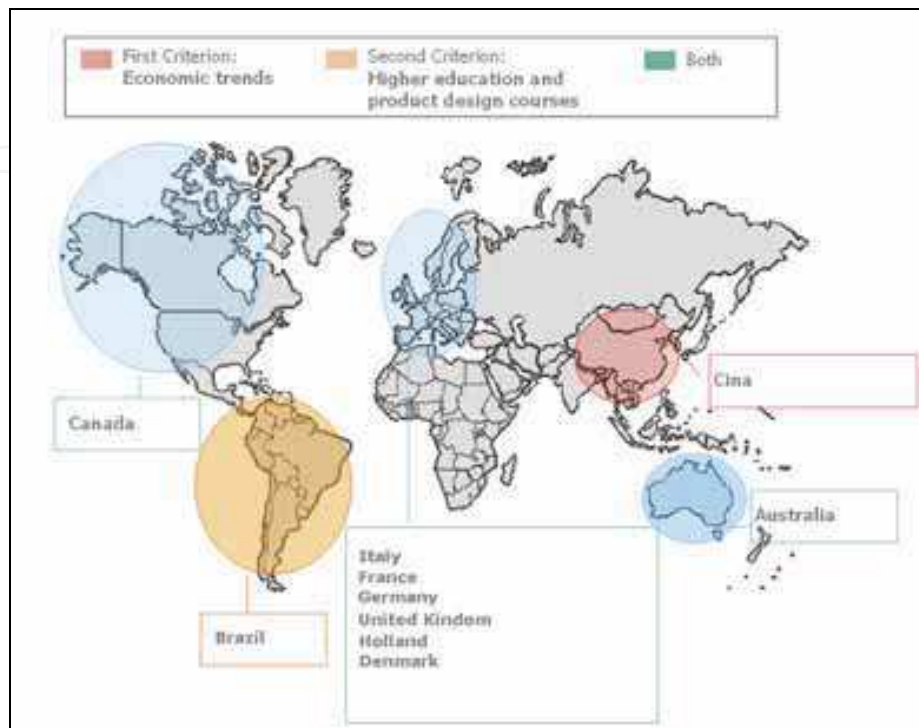


Fig. 1. Countries suitable for a interesting case study

It was fundamental to analyse the historical context where the different contemporary industrialised world school models were developed in order to understand the current ones and, according to Steve Brint's (Steve Brint, 1998) declarations, also to realise how the differences in the school structure directly weigh on the working opportunities in students' lives. This research part examined the scholar structure, in particular the didactic system, to identify key differences between nationality, experiences, attitudes and opportunities for students: in synthesis the relation between society and the school.

The industrialized world students participate within a global culture: blue jeans, rock music, the same age company and a higher and higher independence are common characteristics more or less everywhere, alternatively, there are important national differences behind these known common styles and these differences are strictly related to the school system in the different countries. The result is that there are different national student stereotypes: the cultural distinction of the British sixth former; the impenetrable Japanese juku student; the outwardly breezy American one. Brint (Steve Brint, 1998) suggests that these national types have to be thought as a product of a specific national character, or of peculiar historic experiences. But these national characteristics are indeed linked to the differences in education's organization itself. The differences in the school structures are connected to the young students differences in the way of thinking and acting: to differences which they have in perception of the existing borderlines among social classes, to differences in their readiness in concentrating and committing themselves, to the different importance that the

consciousness of opportunities existence compared to social class consciousness assumes and even the degree of confidence they have in the future.

Parallel to this historical context analysis, the author analysed the national context, industrial and economic contexts, and historical and cultural context.

In detail

- the analysis of the national contexts (main aspects for the product design in each individual Country identified) comprised a review of industrial, economic, historical and cultural contexts;
- the industrial context is analysed on a country basis to ascertain the type of industrial system (ratio of small and medium enterprises to multinationals), the industrial sector by size (%) and the import-export (volume);
- the economic context was examined as a macro-area (or on a continental basis) because countries within a continent have comparable economies and can be analysed to ascertain economic trends, economic dynamics and the value of imports-exports;
- the historical and cultural contexts were analysed on a country basis to ascertain the existence of a history or culture of design.

After the previously discussed analysis, it was necessary to ascertain whether universities or schools of art and design in general, have developed curricula to meet the changing market demand, or whether they have been developed to push ideas of design into the market. Furthermore, it is of interest to assess whether classroom work is effective in relation to industry, as this impacts on the extent to which industry will then employ product designers.

In addition, the number of students that enrol on courses will help the author to understand the relation with the marketplace, the political context and the level of economic demand within a country. Therefore, the author terms a University with a large number of students a 'mass university/school', because students are educated to become designers who are able to satisfy mass needs. Within this distinction, the student has to become aware of a lot of concepts, but not with any deep knowledge. The student, on graduation, must be ready to work in a market that requires a product designer with abilities to approach a variety of projects. In contrast, an 'elite university/school' has a small group of students per classroom and, frequently, disciplines are concentrated in practical modules, often the result of a historical tradition. These institutions were typically conceived and monopolised by the landowner and commercial social classes, who wished to preserve the culture of the old aristocratic class.

Ideally, the education that these two different schools offer should be the same. In addition, the author wishes to understand if the number of students are determined by the opportunity offered by the institution (in terms of space, number of lecturers, fees, etc) or by the market. Henceforth, the researcher has investigated product design curriculum throughout a number of institutions and has focused in particular on the disciplines that the students learn. This examination is made to understand which approach the school utilises, and whether it is mainly practical or theoretical.

This division is designed to compare (in % terms) the disciplines adopted in schools/universities, as it is considered unlikely that two or more institutions will share the same module content, even where they share comparable titles. This allows the author to

identify the approach utilised by the institution and, in particular, which knowledge it offers to future product designers.

The above described analysis allowed the author to understand which “modules” could be identified as ‘Design Studio’ relating to the contents and the results that the school section scheduled.

The Design Studio identification was determined by the analysis of the thematic area that the module had to treat. This part was developed by the author in order to be able to compare the process used within different institutions (placed in different countries).

The Design Studio process identification appropriate to become a case study, has highlighted the language difference used at a global level: the result is a problem that includes most education (both university and non) at a worldwide level, but often also at a continental one and sometimes even at a national one. For this reason, identifying case studies has been the result of in-depth interviews held with Master or Bachelor Degree Courses Project leaders, with teachers and students, after analyzing the Program Handbooks.

Identifying the examples was not an easy task for the author due to the schools’ curriculum description and the paucity of detail surrounding module content. The recognition of the “right” Design Studio to analyse was determined by the previous description and also by the availability and the interest of teachers and students in the research who helped the author with personal interviews and answering e-mails.

It could be surmised that there is not a single definitive criteria for the identification of the Design Studio therefore the author adopted a varied and pluralistic methodological approach in identifying appropriate studios for investigation.

In synthesis the author analysed the ‘Design Studio’ because it is the module that integrates together all disciplines acquired by the students.

In order to study the module and to be able to compare it with the others, it was necessary to establish a format with the main characteristics of some phases of a teaching process. In this way the author had the basis to compare the processes by similarities and implementations.

After the analysis of three case studies in different countries, the author determined a number of phases that were the bases for the next case studies. This determination was fundamental because in every school the same phases were called with a different name, so it was necessary to find a name and the content (teacher request and outputs) of every phase to have a unique language at the end of the analysis.

3. Results

3.1 About design education and the context

“Based on the understanding that every design object is a cultural sign and belongs to historical, social, environmental, economic and political contexts, design can't be generalized and reduced to an hermetic and pre-deterministic issue. On the contrary, the consciousness of the complexity and cultural diversity of the world in design studies and practices is fundamental. In this sense, it is necessary to adopt holistic and interdisciplinary approaches, taking into account the various factors involved within the product development process and consider the ambiguous nature of design, which is both linked to development

processes and to products that emerge from them, comprising a confluence of objective and subjective aspects” (Ono & Loschiavo dos Santos, 2003)

The design area has historically sheltered various movements and discourses, some of them more and some others less directed to universal and particularistic approaches, which have, in turn, influenced design both in theory and practice.

Design education plays an important role in the development of design knowledge, research and practice and it is essential to adopt an interpretive and holistic approach, taking into account the complexity that characterizes life within a world where cultural diversity as well as social, economical, industrial, political and environmental contexts, amongst others, must be focused on the fulfilling of people's requirements for artifacts from a perspective of cultural and social responsibility and commitment (Ono, 2005).

Based on research on industrial design and cultural diversity conducted by Ono (Ono, 2005), the research developed demonstrated some fundamental interrelations that could be helpful for orientating design education and practice. It is based on respect to cultural identities and focused on the catering for people's requirements for products, and on the development of their autonomy, identity and wisdom, as well as on the sustainable, social and economical development. Figure 2 illustrates the Ono idea (Ono, 2005) about design that the author used as basis to identify the factors that could influence the teaching process with the product design studios.

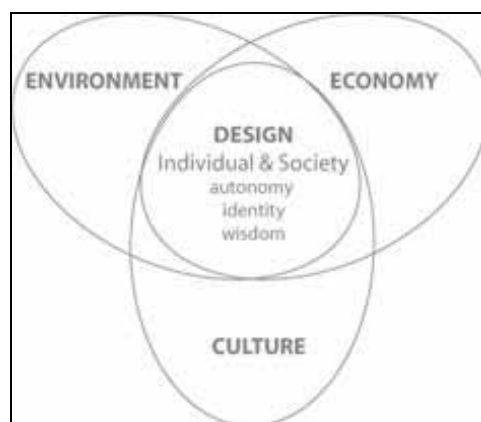


Fig. 2. A representation of Ono (Ono,2005) ideas about interrelations that could be helpful for orientating design education and practice

These factors analyzed in every case study, to understand how and how much the design studio process is influenced, are:

- the link with the context (economical and industrial in a hand, and cultural and historical in the other hand)
- the design culture consolidated inside the school/institute;
- the presence of different Design Courses within the schools and, as a consequence, the sharing among the various approaches to the discipline;
- the design research conducted inside the institutions related.

All these factors together allow developing a multidisciplinary sensibility towards the limits of the discipline itself.

3.2 About the curriculum and the school approaches

Before the design studio analysis the author studied the curriculum of schools to understand witch trend between practical and theoretical, and artistic and technical approach is more adopted within the design institution.

Through the examination of the modules, to understand the approach adopted in every school, it is shown that in thirteen schools analyzed (Figure 3) only three cases present equilibrium between “artistic and technical approach”, with a low inclination for the theoretical subjects. The other schools present a clear inclination to the technical approach with a relevant for the theoretical subjects, but the differences between theoretical and practical are significant. Indeed these differences were the reason of interest for the analysis of the Design Studio.

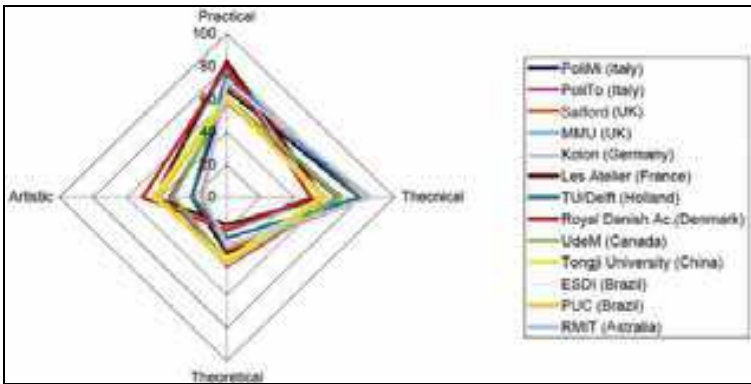


Fig. 3. Representation of the approach adopted from the schools analyzed through the curriculum

It was interesting to identify the disciplinary orientation of every institution through the modules analysis and their value in ECTS (European Credit Transfer System). Figure 4 underlines the project work importance and the trend of every school to teach disciplines in a very different way (Scientific and Humanistic).

The author categorized all the modules in this way because it is important to know the general school inclination towards some disciplines to understand the reasons of an option about teaching design process within the design studio instead of another one.

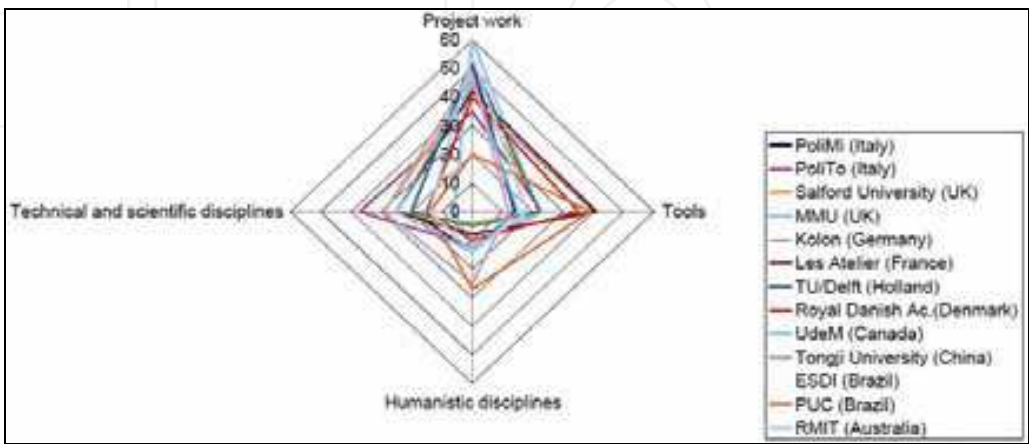


Fig. 4. Representation of the school trend about the disciplines taught

Before analyzing the design studio, the author analyzed the relation of it with all the modules to understand if there are differences between the institutions. The results are illustrated in Figure 5 where it is possible to recognize that:

- in the first case the design studio is supported by a series of optional seminars;
- in the second case the design studio is supported by a number of compulsory modules both theoretical then practical that are present in the curriculum
- in the third case the design studio is supported by some compulsory theoretical modules taught before starting the design studio, and other modules that are developed during the design studio semester with a strong link and information exchange with the design studio subject.

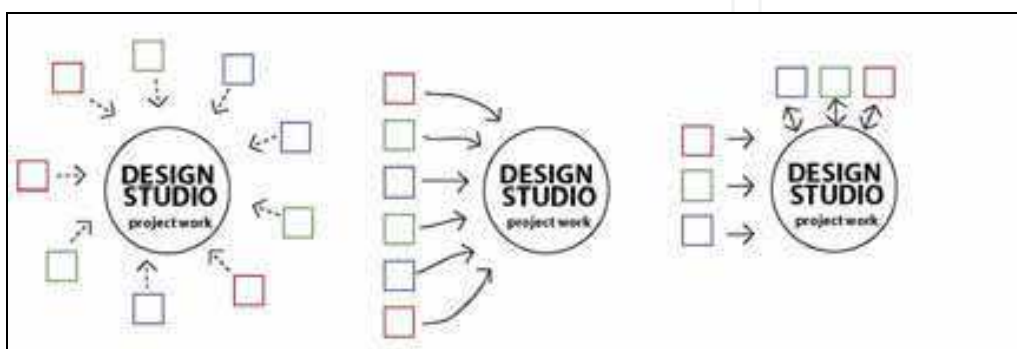


Fig. 5. Correlation between all modules and design studios

3.3 About design studios

The analysis of Design Studios provides the author with tools to identify 3 macro-phases present in every case study.

In detail the macro-phases are: Primary analysis, Design Goals and Project development.

Each of them was analysed with the identification and integration of twenty-two phases. This procedure was essential to have the same parameters of comparison between all the case studies.

At the end of the analysis, the comparison shows (Figure 6) that the Primary analyses are very similar between schools with the same approach. In particular the institutions which have an artistic approach apply for that phase only for some aspects and, on the other hand, the institutions with a technical approach make a deep and extended primary analysis.

For the Design Goals macro-phase all the institutions present a similar process and phase sequence, the only difference is the way to manage the brief: in some cases it is given to the students at the beginning of the Design Studio, in other cases it is developed by the students at the end of the first phase (primary analysis).

The Project development macro-phase is equal, in process terms, into all the Design Studios analysed, with only some differences in temporal conditions and in management of the experimental model.

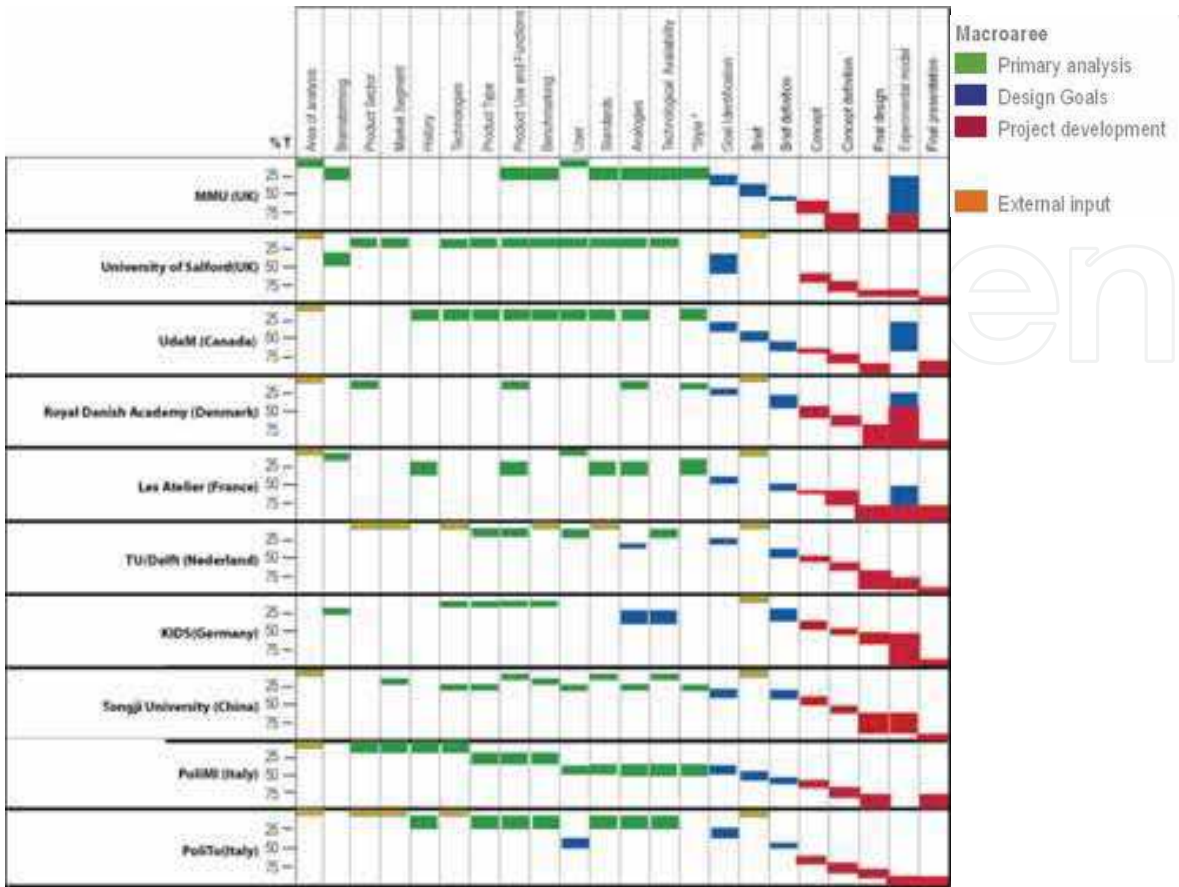


Fig. 6. Comparison between all the design studio analysed

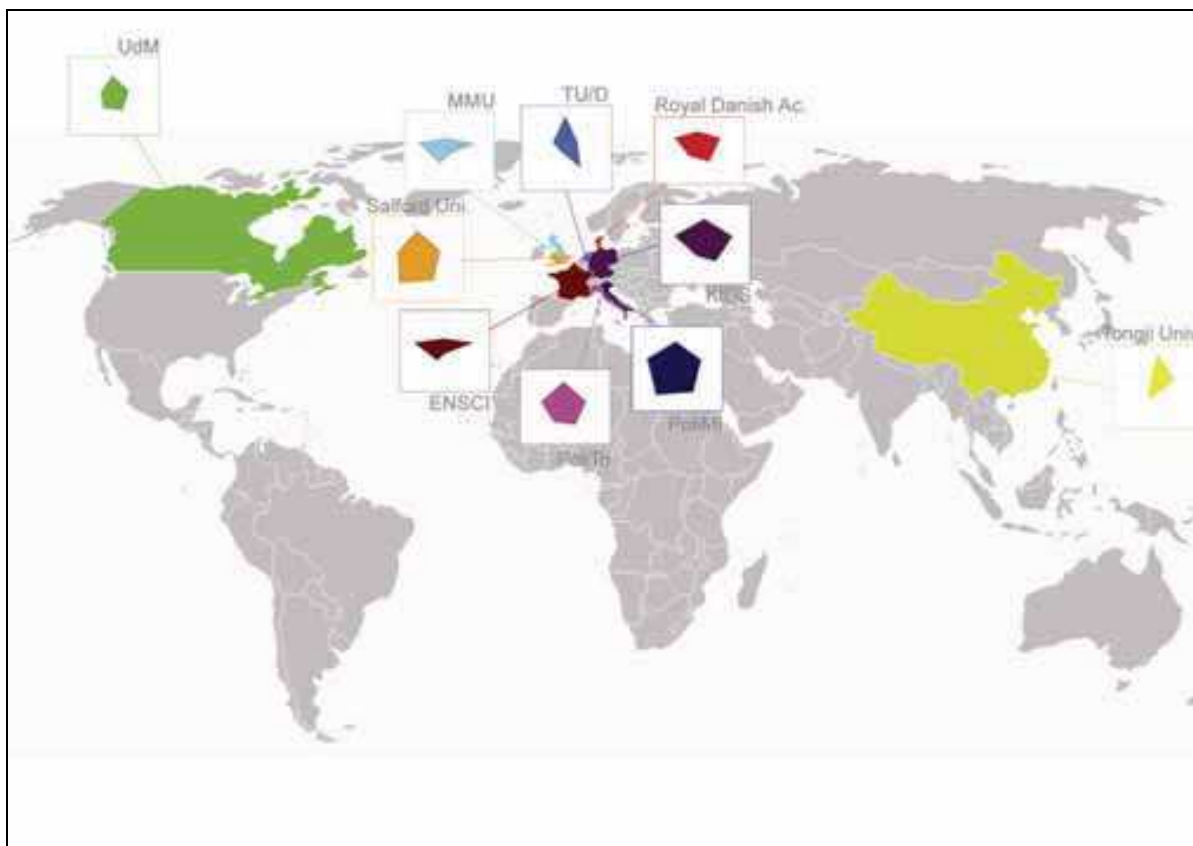
The research has been developed in order to reach the definition of a teaching process useful for Design Studio development within an international context.

From the analysis of the Design Studio teaching processes the most advisable solution appears to be the statistic classification of all the design steps. This solution, however, is not acceptable if one considers the aspects analyzed in each case study. Particularly, two evaluation terms appear to be highly relevant:

- the time factor: the time dedicated at each design studio;
- the curriculum: disciplines taught and their relationship with the design studio.

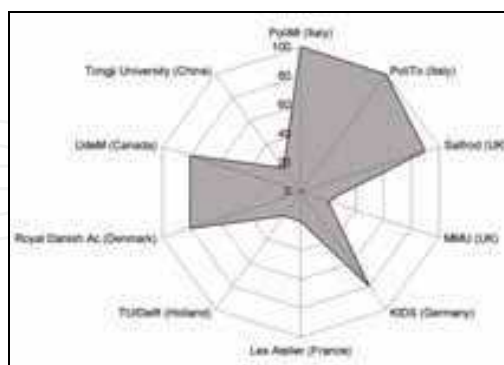
Moreover, the differences amongst the various schools related to the time factor along with the relationship between the design studio and the other subjects, suggest a solution of implementation of the Design Studio with short devoted Design Studios. These dedicated short periods of the Design Studio could allow an official recognition of the contents and the steps that are developed in other schools without messing up the didactic structure.

These two hypotheses do not look like being the ideal solution: for this reason the author compares the factors that influence and have influenced the phases and the steps within every Design Studio teaching process (Figure 7).



4. Conclusion: possible future developments

The images below illustrate how every factor influenced the process within the design studio analysed.



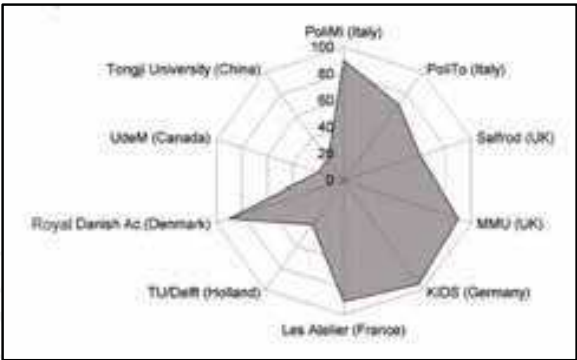


Fig. 9. Comparison between the influence of the cultural and historical context within design studios.

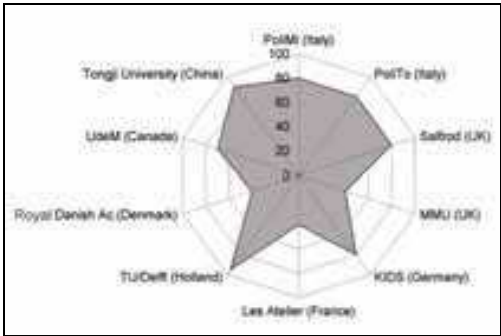


Fig. 10. Comparison between the influence of the economical and industrial context within design studios

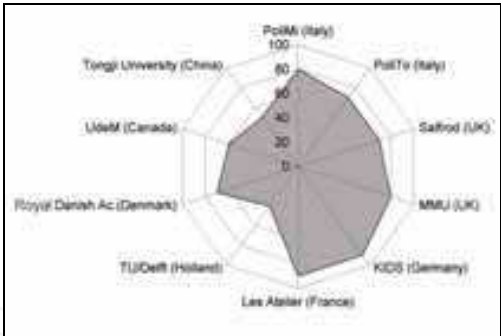


Fig. 11. Comparison between influences of the design culture consolidated inside the institute in relation with the process within the design studio.

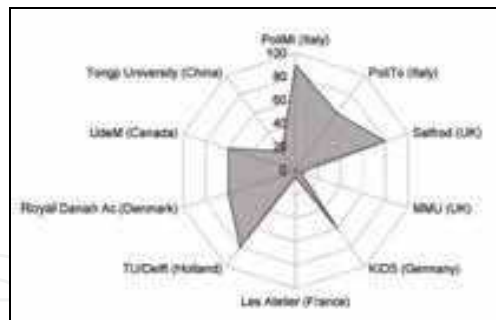


Fig. 12. Comparison between the designs researches conducted inside the institutions related with the process within the design studio.

Throughout the comparison between every singular factor that has influenced the design process within the product design studios analysed, the author thinks that it will be possible to create an on line design studio where every institution can see what is not developed in its own teaching process. In this way there is the possibility to understand where the own process is more or less lacking, and to try to implement its own process adopting a phase (or more) from other institution which have developed the phase process in another way.

This proposal intends to contribute to facilitate Countries cooperation in the field of Product design Higher Education and to help in improving Industry-University relations concerning to new product and market development, in the context of globalisation and localisation. The idea has the purpose to improve the integration at an international level between the factors that influenced the teaching process within design studios and the needs of the Institution to remain competitive about product design education and the global requests that are in constant change.

The specific objective is to reach an improved integration at an international level between product design teaching practices and local country needs (in particular market and industry needs) through the development of new phases inside the design studios if necessary.

The expected results are the delivering of a on line design studio on validated and integrated teaching content and methods, oriented to the industry and market needs of each country.

The on line design studio strives also to create a common field for teaching-staff exchange by its on line environment and the reached awareness of project's aims.

The on line design studio will be intended as a single project module which can be seen both as a self-standing specialization course and as a part of a design studio, depending on each University academic system.

Educational goals of the on line design studio could be:

- To improve design skills dealing with product innovation issues
- To improve the capability of blending and/or shifting to different cultural contexts
- To learn process for managing the complexity of the product systems
- To experiment co-design dynamics by a constant interaction with several disciplines and approaches to the product setting activity

Indeed nowadays in the countries with advanced or developing economies there is a constant and fast growth in industrial and economical fields. This corresponds to a growth of the contacts, ventures and agreements between the companies. Thus, economical and

manufacturing know-how has being shared and tuned to be efficient on a global market. But both design policies and strategic planning are still reliant on local situations, which have to be analysed and understood. HE institutions can offer initiatives, like this project, to become a more active partner of the integration process and to improve their capabilities to interact with industries and actors of the global economical development.

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